Injury proof coaches

422. SHRI B.J. PANDA: Will the Minister of RAILWAYS be pleased to state:

(a) whether the Railways have developed coaches which are passenger-friendly and injury-proof in the event of accidents;

(b) whether these coaches have been tried on passenger trains and have passed the desired tests; if so, the details thereof;

(c) what are the special features which make these coaches injury proof and passenger-friendly; and

(d) by when these coaches would be attached to all the important long-distance Mail and Express trains?

THE MINISTER OF STATE IN THE MINISTRY OF RAILWAYS (SHRI BANDARU DATTATRAYA): (a) Railway coaches of existing design have a number of amenity fittings for passenger comfort and have all steel welded bodies which are anti-telescopic to save passenger lives during accidents. However, to further improve the crashworthiness of coaches, railways have initiated a two pronged action. Firstly, a thorough review of coach interiors and fittings was carried out and innovative ideas were generated to modify the interiors so that no injury occurs during accidents. An inter-railway coach interiors modifications competition was held and 51 such modifications were short listed for adoption on all coaches being manufactured or taken for periodic overhauling. Instructions have been issued to start implementation of such modifications short listed for adoption in new coaches as well as for retro-fitment on existing coaches.

Also, a second action has been initiated to develop coaches with crashworthy bodies using computer simulation and field validation through actual crash tests. Once developed, such coaches will absorb a major part of impact during serious accidents in non-passenger-carrying areas, thus saving precious human lives.

(b) Some coaches with improved interiors have been inducted in service. The passenger reaction and impact of modification will be evaluated on continuing basis to improve further. As regards development of coaches with crashworthy bodies, such coaches will be evaluated

through physical crash tests, conducted on prototype based on designs developed through computer simulation.

(c) A list of 42 of modifications for improvement of interiors, to prevent injury to pasengers in case of accidents and another 9 modifications to prevent injury to passengers from climbing on coach roof is enclosed in the Statement. (*See* below)

(d) These modifications to the interiors have already been adopted for new manufacture and also for retrofitment on existing coaches during every periodic overhaul. As the process of induction of improved coaches will be gradual and may need further improvements, no fixed time frame can be arranged for completion of this process at this stage, through all out efforts are made to carry out these changes early.

The process of development of coaches with crashworthy structures is also in the preliminary stage and no target can be fixed at this stage for complete implementation on all important long distance Mail and Express trains.

Statement

Modification for improvement of interiors of coaches

PART-I

(A) INJURY-FREE FEATURES TO BE ADOPTED

(i) *AC Coaches:*

Sl. No.	Item	Suggestions	To be Implemented by
Lavatory Area			
1.	Tray below mirror in lavatory and soap tray above wash basin.	Tray to be eliminated and soap tray relocated to partition side above the wash basin.	Rly. Workshops and Production Units.
2.	Shelf at the side wall side in lavatory	To be sunk inside the side wall.	Rly. Workshops and PUs.
3.	Flushing Valve	(i) To be re-oriented by turning 90 degrees. (ii) Press type flush valve to be standardized.	Rly. Workshops and PUs. Rly. Workshops.

Sl. No.	Item	Suggestions	To be Implemented by
4.	Flushing Valve in Western type Toilet	Plumbing arrangement shifted from sidewall to corner.	Rly. Workshops and PUs.
5.	Toilet Paper Holder	To be sunk inside the end wall with flap cover.	Rly. Workshops and PUs.
6.	Coat hook on the lavatory door.	Design modified to swivelling type and re-located onthe door above louver.	Rly Workshop and PUs.
7.	Coat hook above the outside wash basin.	To be replaced by ring type Towel Holder.	Rly. Workshops and PUs.
8.	Mouldings in the Toilet Entrance Bay	Rounded Aluminium mouldings to be provided.	Rly.Workshops and PUs.
Passenger Compartment:			
9.	Berth Reading Light	Existing box type berth reading light to be replaced by focusing type and re-located and sunk inside the side wall.	PUs
10.	Coat Hook at longitudinal upper	Swivelling type coat hook to be provided and located at a high level.	Rly. Workshops and PUs.
11.	Diffuser	Modified design of Diffuser duly with sunk in arrangement to be used.	PUs.
12.	Foldable Table	To be sunk inside the side wall so that the table will flush with the side wall in the folded condition.	PUs.
13.	Fan	The existing design of fan with sharp ribs on the fan guard to be replaced with modified design with ribs inside the guard.	PUs. and Workshops whenever the fans are replaced.
14.	Fluorescent Light Fittings	The existing protruding type fitting to be replaced by sunk-in type arrangement.	PUs.
15.	Mirror	The existing rectangular mirror to be replaced by mirror with round corners with SS frame.	PUs. & Workshops whenever mirrors are replaced.

Sl. No.	Item	Suggestions	To be Implemented by
16.	Seats and Berths	The sharp corners to be rounded off with adequate padding.	To be implemented by Rly. Workshop This has already been implemented PUs.
17.	Side Berth Locking Latch	The projecting knob in the existing side Berth Latch to be eliminated by using T-type latch arrangement.	Rly. Workshops and PUs.
18.	Side lower berth holding arrangement	To be shifted from center to sidewall corner.	Rly. Workshops and Pus.
19.	Ladder for Upper Berth	Moulded PU foam type ladder to be used.	PUs & Rly. Workshops.
20.	Bracket for holding Side Upper Berth.	Transverse and side upper berths shall be of fixed type as these are seldom folded by passengers. This will also eliminate the necessity for providing a Bracket for holding the berth in the folded condition.	PUs.
21.	Berth Holding Bracket	To be replaced by Tower Bolt with minimum projection.	Rly. Workshops and PUs.
22.	Upper Berth Holding Bracket.	The protruding bolt heads to be replaced with counter-sunk studs.	Rly. Workshops and PUs.
23.	Headrest for Upper Berth.	Provision of Cushion Pad on sidewall at Upper Berth locations to avoid head injuries.	Rly. Workshops and PUs.
(ii) Non-AC Coaches			
	Lavatory Area		
24.	Coat Hook on lavatory door and partition	Swivelling type Coat Hooks to be provided and re-located on the door above the louver.	Rly. Workshops and PUs.
25.	Flushing Valve	(i) To be re-oriented by turning by 9:* (ii) Press type flush valve to be standardized.	(ii) Rly. Workshops and PUs. (ii) Railway Workshops.
26.	Soap Tray below the mirror in toilets	To be eliminated and a small Sunk-in-type shelf to be provided in the sidewall above the Wash Basin.	Rly. Workshop and PUs.

Sl. No.	Item	Suggestions	To be Implemented by
27.	Banjo Shutter arrangement	This arrangement to be replaced by sealed window arrangement with Powder Coated Venturi type exhaust arrangement as provided by ICF in AC coaches.	Rly. Workshops and PUs.
28.	Handles for water tank cover panel	The existing protruding handles to be replaced by swivelling and press-in type handles.	Rly. Workshops and PUs.
Passenger Compartment:			
29.	Coat Hook on the compartment partition	Swivelling type Coat Hooks to be provided and re-located towards sidewall.	Rly. Workshops and PUs.
30.	Bracket for middle berth Suspension	Bracket to be re-located from the bottom of Upper Berth to Upper Berth strap.	PUs.
31.	Headrest for Upper Berth	Provision of Cushion Pad on Sidewall at Upper Berth location to avoid head injuries.	Rly. Workshops and PUs.
32.	Upper Berth	Provision of PU foam moulded safety railing similar to the one provided in 1 AC coaches to prevent accidental falling of passengers of luggage.	Rly. Workshops and PUs.
33.	Footstep for climbing Upper Berth	PU foam moulded type ladder to be provided.	Rly. Workshops and PUs.
34.	Middle Berth Suspension	Middle Berth Suspension redesigned eliminating the eye.	Rly. Workshops and PUs.
35.	Side Upper Berth Suspension arrangement	1. Suspension Chain Eye to be flushed with berth to avoid lifting in case of derailment. 2. As an alternative the side upper berth can be fixed type with strap suspension.	To be implemented by Rly. Workshops and PUs.
36.	Side Berth Locking Latch	Latch to be re-designed eliminating the projecting knob by providing T-type latch.	Rly. Workshops and PUs.

Sl. No.	Item	Suggestions	To be Implemented by
37.	Side Berth Seat Retaining Bracket	To be replaced by Tower Bolt at side wall corner with minimum projection.	Rly. Workshops and PUs.
38.	Suspension straps for berths	The sharp edges to be removed by rounding off.	Rly. Workshops and PUs.
39.	Snack Table	To be flushed with side wall.	PUs.
40.	Wire Rope for Luggage locking.	To be replaced by foldable pull-up handles below the seat.	Rly. Workshop sand PUs.
41.	All mouldings	Steel mouldings to be replaced by FRP poltruded mouldings with rounded corners.	To be implemented by Rly. Workshops and RCF. ICF have already implemented.
42.	Luggage Rack of GS coaches	Modified Luggage Rack with increased slope and depth by providing adequate projection all around the luggage rack.	PUs.

The above modifications recommended to be implemented by PUs., should also be implemented by Carriage Workshops, Bhopal, Central Rly. and at the Rly. Workshops undertaking refurbishing of coaches.

(B) Anti-roof climbing features to be adopted:

S.No.	Item	Suggestion	To be implemented by
1.	Cover for Emergency Feed Terminal (EFT)	Sunk-in type arrangement to be provided eliminating the projection on the endwall.	Rly. Workshops and PUs.
2.	Cover for Passenger Alarm Terminal Board	Sunk-in type arrangement to be provided eliminating the projection on the endwall.	Rly. Workshops and PUs.
3.	Cover for pre-cooling Socket	Sunk-in type to be provided eliminating the projection on the endwall.	Rly. Workshops and PUs.
4.	Ladders and handles	To be eliminated.	Rly. Workshops and PUs.
5.	Passenger Alarm re-setting device	To be modified from operation from rail level.	Rly. Workshops and PUs.
6.	Air Pipe	Piping to be flush-in with end wall eliminating the projections.	Rly. Workshops and PUs.

S.No.	Item	Suggestion	To be implemented by
7.	Vestibule Frame with strengthening ribs outside	Design to be modified by providing the strengthening ribs from inside and closing it into Box.	Rly. Workshops and PUs.
8.	Ladder at the bottom of the endwall	To be eliminated.	Rly. Workshops and PUs.
9.	Lavatory Window	The window bars shifted from outside to inside the window frame.	Rly. Workshops and PUs.

Ultrasonic testing of rail parts

423. SHRI C.O. POULOSE: Will the Minister of RAILWAYS be pleased to state:

(a) whether ultrasonic testing of all the moving parts is being conducted in the Indian Railways;

(b) if not, the reasons therefor;

(c) whether the officials are keeping records of wheel profiles after each periodic overhauling since, derailments also occur whenever there is a substantial variation in the thickness of wheel flanges and the wheel diameter; and

(d) if not the reasons therefor?

THE MINISTER OF STATE IN THE MINISTRY OF RAILWAYS (SHRI BANDARU DATTATRAYA): (a) Ultrasonic testing of critical components, related to safety like axles of rolling stock, is done at regular intervals in Indian Railways as prescribed in the Maintenance Manuals.

(b) Does not arise.

(c) Wheel profiles are checked during periodic overhaul. Important parameters related to wheel measurements like wheel diameter, wheel gauge, etc. are recorded in the workshops and variation in flange thickness or wheel diameter beyond prescribed permissible limit is not allowed.

(d) Does not arise.